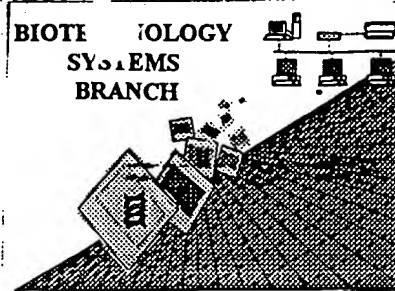


RAW SEQUENCE LISTING ERROR REPORT

BIOTECHNOLOGY
SYSTEMS
BRANCH



04CO/
01-05-01

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) detected errors when processing the following computer readable form:

Application Serial Number: 09/740,288
Source: OIPE
Date Processed by STIC: 01-09-01

THE ATTACHED PRINTOUT EXPLAINS DETECTED ERRORS.

PLEASE FORWARD THIS INFORMATION TO THE APPLICANT BY EITHER:

- 1) INCLUDING A COPY OF THIS PRINTOUT IN YOUR NEXT COMMUNICATION TO THE APPLICANT, WITH A NOTICE TO COMPLY or,
- 2) TELEPHONING APPLICANT AND FAXING A COPY OF THIS PRINTOUT, WITH A NOTICE TO COMPLY

FOR CRF SUBMISSION QUESTIONS, PLEASE CONTACT MARK SPENCER, 703-308-4212.

FOR SEQUENCE RULES INTERPRETATION, PLEASE CONTACT ROBERT WAX, 703-308-4216.

PATENTIN 2.1 e-mail help: patin21help@uspto.gov or phone 703-306-4119 (R. Wax)

PATENTIN 3.0 e-mail help: patin30help@uspto.gov or phone 703-306-4119 (R. Wax)

TO REDUCE ERRORED SEQUENCE LISTINGS, PLEASE USE THE CHECKER VERSION 3.0 PROGRAM, ACCESSIBLE THROUGH THE U.S. PATENT AND TRADEMARK OFFICE WEBSITE. SEE BELOW:

Checker Version 3.0

The Checker Version 3.0 application is a state-of-the-art Windows based software program employing a logical and intuitive user-interface to check whether a sequence listing is in compliance with format and content rules. Checker Version 3.0 works for sequence listings generated for the original version of 37 CFR §§1.821 - 1.825 effective October 1, 1990 (old rules) and the revised version (new rules) effective July 1, 1998 as well as World Intellectual Property Organization (WIPO) Standard ST.25.

Checker Version 3.0 replaces the previous DOS-based version of Checker, and is Y2K-compliant. Checker allows public users to check sequence listings in Computer Readable form (CRF) before submitting them to the United States Patent and Trademark Office (USPTO). Use of Checker prior to filing the sequence listing is expected to result in fewer errored sequence listings, thus saving time and money.

Checker Version 3.0 can be down loaded from the USPTO website at the following address:

<http://www.uspto.gov/web/offices/pac/checker>

OIEP

RAW SEQUENCE LISTING DATE: 01/09/2001
 PATENT APPLICATION: US/09/740,288 TIME: 13:17:05

Input Set : A:\BB1429 US NA Seq Listing.txt
 Output Set: N:\CRF3\01092001\I740288.raw

Does Not Comply
 Corrected Diskette Needed
 See p. 6

```

2 <110> APPLICANT: Allen, Steve
3   Kinney, Tony
4   Miao, Gou-Hua
5   Orozco, Buddy
7 <120> TITLE OF INVENTION: PLANT BIOTIN SYNTHASE
9 <130> FILE REFERENCE: BB1429 US NA
C--> 11 <140> CURRENT APPLICATION NUMBER: US/09/740,288
C--> 12 <141> CURRENT FILING DATE: 2000-12-19
14 <150> PRIOR APPLICATION NUMBER: 60/172929
W--> 15 <151> PRIOR FILING DATE: December 21, 1999 → 1999-12-21
17 <160> NUMBER OF SEQ ID NOS: 36
19 <170> SOFTWARE: Microsoft Office 97
21 <210> SEQ ID NO: 1
22 <211> LENGTH: 512
23 <212> TYPE: DNA
24 <213> ORGANISM: Hordeum vulgare
26 <220> FEATURE:
27 <221> NAME/KEY: unsure
28 <222> LOCATION: (94)
30 <220> FEATURE:
31 <221> NAME/KEY: unsure
32 <222> LOCATION: (460)
34 <220> FEATURE:
35 <221> NAME/KEY: unsure
36 <222> LOCATION: (462)
38 <400> SEQUENCE: 1
39 caactccctc qgcagtagcg cctagtgrag cagcggtccc gttccggcca gctttgctcg 60
W--> 40 ccgagccggc catgatgctg ctgctcgcgc gcancttcgc tcccgcgtcc ggtcccccctt 120
41 cgcctccgcc qitagcgccg cgcctctctc atcggtatcg gcggccgcgg cggagggcga 180
42 cgggcggtgc qggacgggcc caggaacgac tggaccggcc ccgagatcca ggcctctac 240
43 gactcccgcc tctcgacct cctcttccac qgggctcaag tccataggaa tgtccataaa 300
44 tttagagaag tgaacaatg cacacttctt tcaataaaga ctgggtgggtg cagcgaagat 360
45 ttttcatact gccacagtc ttcaagatac agtaccggat tgaaggctga aaatttaattg 420
W--> 46 aagaaagatg ccgtcctaga agcagctaaa aaggcaaaag aagctggggag caccgcattt 480
47 tgattggagc gatggagaga gacaattggc ag 512
49 <210> SEQ ID NO: 2
50 <211> LENGTH: 137
51 <212> TYPE: PRT
52 <213> ORGANISM: Hordeum vulgare
54 <220> FEATURE:
55 <221> NAME/KEY: UNSURE
56 <222> LOCATION: (131)
58 <400> SEQUENCE: 2
59 Met Met Leu Leu Leu Ala Arg Ser Leu Arg Ser Arg Val Arg Ser Pro
60 1 5 10 15
62 Phe Ala Ser Ala Val Ser Ala Ala Pro Phe Ser Ser Val Ser Ala Ala
63 20 25 30

```

RAW SEQUENCE LISTING

DATE: 01/09/2001

PATENT APPLICATION: US/09/740,288

TIME: 13:17:05

Input Set : A:\BB1429 US NA Seq Listing.txt

Output Set : N:\CRF3\01092001\I740288.raw

```

65 Ala Ala Glu Ala Glu Arg Ala Val Arg Asp Gly Pro Arg Asn Asp Trp
66          35          40          45
68 Thr Arg Pro Glu Ile Gln Ala Ile Pyl Asp Ser Pro Leu Leu Asp Leu
69          50          55          60
71 Leu Phe His Gly Ala Gln Val His Arg Asn Val His Lys Phe Arg Glu
72 65          70          75          80
74 Val Gln Gln Cys Thr Leu Leu Ser Ile Lys Thr Gly Gly Cys Ser Glu
75          85          90          95
77 Asp Cys Ser Tyr Cys Pro Gln Ser Ser Arg Tyr Ser Thr Gly Leu Lys
78          100          105          110
80 Ala Glu Lys Leu Met Lys Lys Asp Ala Val Leu Glu Ala Ala Lys Lys
81          115          120          125
W--> 83 Ala Lys Xaa Ala Gly Ser Thr Arg Phe
84          130          135
86 <210> SEQ ID NO: 3
87 <211> LENGTH: 496
88 <212> TYPE: DNA
89 <213> ORGANISM: Zea mays
91 <220> FEATURE:
92 <221> NAME/KEY: unsure /
93 <222> LOCATION: (33)
95 <220> FEATURE:
96 <221> NAME/KEY: unsure /
97 <222> LOCATION: (318)
99 <220> FEATURE:
100 <221> NAME/KEY: unsure /
101 <222> LOCATION: (321)
103 <220> FEATURE:
104 <221> NAME/KEY: unsure /
105 <222> LOCATION: (365)
107 <220> FEATURE:
108 <221> NAME/KEY: unsure /
109 <222> LOCATION: (446) /
111 <100> SEQUENCE: 3
W--> 112 tccaatcggg tgggcagttt ttaaggaaac canggaccgc aagcaagcaa gccgccccag 60
113 ccgacgaggc gaggagcgtg caatccqta qctgcaacya actccctcga ccgtatcgcc 120
114 cgcctgctct ctatcccttt cctgctgctg ctactacctt aaqctatcac tatcatggcc 180
115 ttgatgctgc taqcgcgcaa cctgcgctcc cgcctccgcc caccgctcgc cgcgcgcgcg 240
116 ggggttctgt cgcgcgcgcg gaggcgagag agggcgatag gggacgggcc gcggaacgac 300
W--> 117 tggagccggc ccgagatnca ngccgtctac gactcaccgc tcctcgacct cctctttcac 360
W--> 118 ggggntcagt catcaagata caacactgga ttgaagggcc aaaaattgat gaacaaatat 420
W--> 119 gctgtcttgg gaggagcaaa aaaggnaaaa gagtctggga agcaaccgtt ttgcatggg 480
120 aactgcattg gaqaaa 496
122 <210> SEQ ID NO: 4
123 <211> LENGTH: 102
124 <212> TYPE: PRT
125 <213> ORGANISM: Zea mays
127 <220> FEATURE:
128 <221> NAME/KEY: UNSURE

```

RAW SEQUENCE LISTING DATE: 01/09/2001
 PATENT APPLICATION: US/09/740,288 TIME: 13:17:05

Input Set : A:\BB1429 US NA Seq Listing.txt
 Output Set: N:\CRF3\01092001\I740288.raw

```

129 <222> LOCATION: (48)..(49) ✓
131 <220> FEATURE:
132 <221> NAME/KEY: UNSURE ✓
133 <222> LOCATION: (54) ✓
135 <220> FEATURE:
136 <221> NAME/KEY: UNSURE ✓
137 <222> LOCATION: (91)
139 <400> SEQUENCE: 4
140 Met Ala Leu Met Leu Ala Arg Asn Leu Arg Ser Arg Leu Arg Pro
141 1 5 10 15
143 Pro Leu Ala Ala Ala Ala Gly Phe Ser Ser Ala Ala Ala Glu Ala Glu
144 20 25 30 ✓
W--> 146 Arg Ala Ile Arg Asp Gly Pro Arg Asn Asp Trp Ser Arg Pro Glu Xaa
147 35 40 45 ✓
W--> 149 Xaa Ala Val Tyr Asp Ser Pro Leu Leu Asp Leu Leu Phe His Gly Xaa
150 50 55 60
152 Gln Ser Ser Arg Tyr Asn Thr Gly Leu Lys Gly Gln Lys Leu Met Asn
153 65 70 75 80
W--> 155 Lys Tyr Ala Val Leu Gly Ala Ala Lys Lys Xaa Lys Glu Ser Gly Lys
156 85 90 95
158 Gln Pro Phe Leu His Gly
159 100
161 <210> SEQ ID NO: 5
162 <211> LENGTH: 497
163 <212> TYPE: DNA
164 <213> ORGANISM: Zea mays
166 <220> FEATURE:
167 <221> NAME/KEY: unsure ✓
168 <222> LOCATION: (192)
170 <220> FEATURE:
171 <221> NAME/KEY: unsure
172 <222> LOCATION: (460) ✓
174 <220> FEATURE:
175 <221> NAME/KEY: unsure ✓
176 <222> LOCATION: (463)
178 <220> FEATURE:
179 <221> NAME/KEY: unsure ✓
180 <222> LOCATION: (469)
182 <220> FEATURE:
183 <221> NAME/KEY: unsure ✓
184 <222> LOCATION: (490)
186 <400> SEQUENCE: 5
187 agccacacag gacagagagc tgaattccg taactgcaac tgcaacgaac tccctccctc 60
188 cctcgaacgt atcgcccgct gctcctctat ccttttctg ctgctgctac tacccttaagc 120
189 tatcatggc ttgatgctgc tagcgcgcaa cctgcgcctc cgcctcgc caccgctcgc 180
W--> 190 cgccgcgcgc gttgttctct cgccgcgcgc ggagggcgag agggcgatag gggacgggccc 240
191 gcggaaacgac tggagccggc ccgagattca agcgtctac gactcagcgc tcc'cgaact 300
192 cctcttttcc ggggctcaag tccacagaaa tgtccataaa ttcagagaaa gtgcagcaat 360
193 gcacacttct tccatccag actggtggga tgcagtgaag attgttctta ctgtctctca 420

```

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/740,288

DATE: 01/09/2001
 TIME: 13:17:00

Input Set : A:\BBI429 US NA Seq Listing.txt
 Output Set: N:\CRF3\01092001\I740288.raw

```

W--> 194 gtcacaaaag/aatacaaacac tgggattgaa gggcccaaan aanttgatna acaaaagatg 480
W--> 195 ctgtcttggg/aacaaca                                     497
197 <210> SEQ ID NO: 6
198 <211> LENGTH: 99
199 <212> TYPE: PRF
200 <213> ORGANISM: Zea mays
202 <220> FEATURE:
203 <221> NAME/KEY: UNSURE
204 <222> LOCATION: (23)
206 <220> FEATURE:
207 <221> NAME/KEY: UNSURE
208 <222> LOCATION: (72)
210 <220> FEATURE:
211 <221> NAME/KEY: UNSURE
212 <222> LOCATION: (39)
214 <400> SEQUENCE: 6
215 Met Ala Leu Met Leu Leu Ala Arg Asn Leu Arg Ser Arg Leu Arg Pro
216 1 5 10 15
W--> 218 Pro Leu Ala Ala Ala Xaa Phe Ser Ser Ala Ala Ala Glu Ala Glu
219 20 25 30
221 Arg Ala Ile Arg Asp Gly Pro Arg Asn Asp Trp Ser Arg Pro Glu Ile
222 35 40 45
224 Gln Ala Val Tyr Asp Ser Pro Leu Leu Asp Leu Leu Phe His Gly Ala
225 50 55 60
W--> 227 Gln Val His Arg Asn Val His Xaa Ser Arg Glu Val Gln Gln Cys Thr
228 65 70 75 80
W--> 230 Leu Leu Ser Ile Lys Thr Gly Gly Xaa Ser Glu Asp Cys Ser Tyr Cys
231 85 90 95
233 Pro Gln
236 <210> SEQ ID NO: 7
237 <211> LENGTH: 1152
238 <212> TYPE: DNA
239 <213> ORGANISM: Zea mays
241 <400> SEQUENCE: 7
242 gcagccgacg aggcgagga cgtgcaattc cgtagctgca acgaactccc tgcaccgtat 60
243 cgcgcctctc tctctatcc ctctctgct gctgctacta ccttaagcta tcaactatcat 120
244 ggccttgatg ctgctagcgc gcaacctgcg ctcccgctc cgcacaccgc tgcgcgcgcg 180
245 cgcgcgcttc tctctggcgc cgcgcgaggc ggagagggcg atacgggacg ggcgcgggaa 240
246 cgaactggagc cgcgcgcgag tccagggcgt ctacgactca cgcctctctg acctctcttt 300
247 tcacggggct caagtcacca gaaatgtcca laaattcaga gaagtgcagc aatgcacact 360
248 tctttcaatc aagactggtg gatgcagtga agattgttct tactgtcttc agtcacaaag 420
249 atacaacact ggattgaagg ccaaaaatt gatgaacaaa tatgtgtctc tggagcgacg 480
250 aaaaaaagca aaagagtctg ggagcaccgc tttttgcatg qgaactgcac ggaagaaaac 540
251 catgggcagg aaatcaaac. tcaaccagat tcttgaatat gtcgaaggaa taagggggtat 600
252 ggcgcctggg gtcctgttgc cactaggcat gataagaaaa caacaagctg aagaactcaa 660
253 gaaggetgga cttacagcat ataactctaa cctagataca tcaagagagt attatcccaa 720
254 cattatacc acaagatcat atgatgatag actgcagact cttgagcatg tccgtgaagc 780
255 tggataaagc atctgctcag gtggaatcat tggctcttgg gaagcagagc aggaccgggt 840
256 agggltgttg cataccctag ctaccttgc taccacccca gagagcgttc ctattaatgc 900

```

RAW SEQUENCE LISTING

DATE: 01/09/2001

PATENT APPLICATION: US/09/740,288

TIME: 13:17:06

Input Set : A:\BB1429 US NA Seq Listing.txt

Output Set: N:\CRF3\01092001\I740288.raw

```

237 attggttggc gtaaaagga cactctctga ggaacagaaq cctglaagaa tctggaat 960
258 galecgcatg atcgccactg ctggatcac gatgccaaag gcaatgggtg ggccttcagc 1020
259 aggcagagta cggcttctga tggcagaaca agcgtgtgac ttcctcgctg ggcaccaact 1080
260 catctctgac ggcagaaac ttctcacaac cgcacaacac gactttgatg cgcaccaagc 1140
261 gatgttcaag at 1152
263 <210> SEQ ID NO: 8
264 <211> LENGTH: 344
265 <212> TYPE: PRT
266 <213> ORGANISM: Zea mays
268 <400> SEQUENCE: 3
269 Met Ala Leu Met Leu Leu Ala Arg Asn Leu Arg Ser Arg Leu Arg Pro
270 1 5 10 15
272 Pro Leu Ala Ala Ala Ala Ala Phe Ser Ser Ala Ala Ala Glu Ala Glu
273 20 25 30
275 Arg Ala Ile Arg Asp Gly Pro Arg Asn Asp Trp Ser Arg Pro Glu Ile
276 35 40 45
278 Gln Ala Val Tyr Asp Ser Pro Leu Leu Asp Leu Leu Phe His Gly Ala
279 50 55 60
281 Gln Val His Arg Asn Val His Lys Phe Arg Glu Val Gln Gln Cys Thr
282 65 70 75 80
284 Leu Leu Ser Ile Lys Thr Gly Gly Cys Ser Glu Asp Cys Ser Tyr Cys
285 85 90 95
287 Pro Gln Ser Ser Arg Tyr Asn Thr Gly Leu Lys Ala Gln Lys Leu Met
288 100 105 110
290 Asn Lys Tyr Ala Val Leu Glu Ala Ala Lys Lys Ala Lys Glu Ser Gly
291 115 120 125
293 Ser Thr Arg Phe Cys Met Gly Ala Ala Trp Arg Glu Thr Ile Gly Arg
294 130 135 140
296 Lys Ser Asn Phe Asn Gln Ile Leu Glu Tyr Val Lys Glu Ile Arg Gly
297 145 150 155 160
299 Met Gly Met Glu Val Cys Cys Thr Leu Gly Met Ile Glu Lys Gln Gln
300 165 170 175
302 Ala Glu Glu Leu Lys Lys Ala Gly Leu Thr Ala Tyr Asn His Asn Leu
303 180 185 190
305 Asp Thr Ser Arg Glu Tyr Tyr Pro Asn Ile Ile Thr Thr Arg Ser Tyr
306 195 200 205
308 Asp Asp Arg Leu Gln Thr Leu Glu His Val Arg Glu Ala Gly Ile Ser
309 210 215 220
311 Ile Cys Ser Gly Gly Ile Ile Gly Leu Gly Glu Ala Glu Glu Asp Arg
312 225 230 235 240
314 Val Gly Leu Leu His Thr Leu Ala Thr Leu Pro Thr His Pro Glu Ser
315 245 250 255
317 Val Pro Ile Asn Ala Leu Val Ala Val Lys Gly Thr Pro Leu Glu Asp
318 260 265 270
320 Gln Lys Pro Val Glu Ile Trp Glu Met Ile Arg Met Ile Ala Thr Ala
321 275 280 285
323 Arg Ile Thr Met Pro Lys Ala Met Val Arg Leu Ser Ala Gly Arg Val
324 290 295 300
326 Arg Phe Ser Met Pro Glu Gln Ala Leu Cys Phe Leu Ala Gly Ala Asn

```

09/740, 288

p. 6

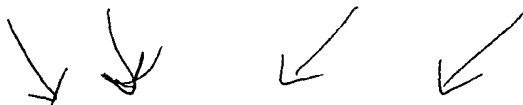
<210> 36
<211> 12
<212> PRT
<213>

Seg # 36

Missing mandatory field:

<400> 36
Gly Xaa Cys Xaa Glu Asp Cys Xaa Tyr Cys Xaa Gln
1 5 10

<213> organism



Missing mandatory <220> to <223> features
to explain "Xaa's" in the sequence.

← F.Y.I.

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/740,288

DATE: 01/09/2001

TIME: 13:17:07

Input Set : A:\BB1429 US NA Seq Listing.txt

Output Set: N:\CRF3\01092001\I740288.raw

L:11 M:270 C: Current Application Number differs, Replaced Application Number
 L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date
 L:15 M:258 W: Invalid Numeric Header Field, Wrong Prior FILING DATE:YYYY-MM-DD
 L:40 M:258 W: Mandatory Feature missing, <22> not found for SEQ ID#:1
 L:40 M:340 W: (40) "n" or "Xaa" used: Feature required, for SEQ ID#:1
 L:46 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
 M:340 Repeated in SeqNo:1
 L:83 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:2
 L:83 M:340 W: (16) "n" or "Xaa" used: Feature required, for SEQ ID#:2
 L:112 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
 L:112 M:340 W: (16) "n" or "Xaa" used: Feature required, for SEQ ID#:3
 L:117 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
 M:340 Repeated in SeqNo:3
 L:118 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
 L:119 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
 L:146 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:4
 L:146 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:4
 L:149 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:4
 M:340 Repeated in SeqNo:4
 L:155 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:4
 L:190 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:5
 L:190 M:340 W: (16) "n" or "Xaa" used: Feature required, for SEQ ID#:5
 L:194 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:5
 M:340 Repeated in SeqNo:5
 L:195 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:5
 L:218 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:6
 L:218 M:340 W: (16) "n" or "Xaa" used: Feature required, for SEQ ID#:6
 L:227 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:6
 M:340 Repeated in SeqNo:6
 L:230 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:6
 L:354 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:9
 L:354 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:9
 L:586 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:15
 L:586 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:15
 L:587 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:15
 M:340 Repeated in SeqNo:15
 L:589 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:15
 L:590 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:15
 L:614 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:16
 L:614 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:16
 L:1721 M:201 W: Mandatory field data missing, ORGANISM
 L:1724 M:258 W: Mandatory Feature missing, <220> not found for SEQ ID#:36
 L:1721 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:36
 L:1724 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:36
 L:1724 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:36
 L:1724 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:36